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1270 Aberdeen St
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D212-664-201TRN
Job Sheet 195372



Part No: D212-664-201TRN

Job Qty: 1 pcs

Part Name: Crosstube Turning Detail



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 5/21/19

Job Tracking No:

Due Date: 6/21/19

Created By: Jennifer Renwick

Type: Stock

Description:

Note: D212-664-241 REV E IPP Rev:A 08-03-06 new issue DD verified by:ec IPP Rev B 08.04.02 Removed polish EC verified DD

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter / Supplier	Lead Time	DAS Sign-off
					Setup Hrs	Run Hrs			
100	Mori Seiki TL-40 - 1	1 pcs	6/21/19	6/21/19	0.00	1.33	Mori Seiki TL-40 - 1		662019-07-30 9-89
110	QC 2	1 pcs	6/21/19	6/21/19	0.00	0.00	QC 2 - 1		
							QC 2 - 12		
							QC 2 - 14		
							QC 2 - 17		
							QC 2 - 19		
							QC 2 - 2		
							QC 2 - 20		
							QC 2 - 22		
							QC 2 - 23		
							QC 2 - 25		
							QC 2 - 32		
							QC 2 - 33		
							QC 2 - 35		
							QC 2 - 39		
							QC 2 - 4		
							QC 2 - 40		
							QC 2 - 44		
							QC 2 - 45		
							QC 2 - 48		
							QC 2 - 49		
							QC 2 - 50		
							QC 2 - 51		
							QC 2 - 52		
							QC 2 - 57		
							QC 2 - 62		
							QC 2 - 63		
							QC 2 - 8		662019-07-30 9-89
							QC 2 - 66		
							QC 2 - 64		
							QC 2 - 65		
							QC 2 - 5		
							QC 2 - 71		662019-07-30 9-89
120	Mori Seiki TL-40 - 1 - B4B	1 pcs	6/21/19	6/21/19	0.00	1.33	Mori Seiki TL-40 - 1 - B4B		
130	QC 2	1 pcs	6/21/19	6/21/19	0.00	0.00	QC 2 - 1		
							QC 2 - 12		
							QC 2 - 14		
							QC 2 - 17		
							QC 2 - 19		
							QC 2 - 2		
							QC 2 - 20		

Plex 5/21/19 10:31 AM Dart.Renwick.Jennife

				QC 2 - 22	
				QC 2 - 23	
				QC 2 - 25	
				QC 2 - 32	
				QC 2 - 33	
				QC 2 - 35	
				QC 2 - 39	
				QC 2 - 4	
				QC 2 - 40	
				QC 2 - 44	
				QC 2 - 45	
				QC 2 - 48	
				QC 2 - 49	
				QC 2 - 50	
				QC 2 - 51	
				QC 2 - 52	
				QC 2 - 57	
				QC 2 - 62	
				QC 2 - 63	
				QC 2 - 8	DAS
				QC 2 - 66	66 2019-07-30
				QC 2 - 64	9-89
				QC 2 - 65	
				QC 2 - 5	
				QC 2 - 71	
140	QC 8	1 pcs	6/21/19	0.00 0.00	QC 8 - 12
					QC 8 - 14
					QC 8 - 17
					QC 8 - 20
					QC 8 - 25
					QC 8 - 3
					QC 8 - 32
					QC 8 - 33
					QC 8 - 35
					QC 8 - 39
					QC 8 - 4
					QC 8 - 44
					QC 8 - 45
					QC 8 - 49
					QC 8 - 58
					QC 8 - 8
					QC 8 - 9
					QC 8 - 68
					QC 8 - 67
					QC 8 - 1 (A)
					QC 8 - 47
					QC 8 - 40
					QC 8 - 52
					QC 8 - 23
145	Crosstubes - 2 - B4B	1 pcs	6/21/19	0.00 0.25	Crosstubes - 1 - B4B
					Crosstubes - 2 - B4B
					Crosstubes - 3 - B4B
					Crosstubes - 4 - B4B
150	Crosstubes - Bend - 2 - B4B	1 pcs	6/21/19	0.00 0.25	Crosstubes - Bend - B4B
160	QC 7	1 pcs	6/21/19	0.00 0.00	QC 7 - 10
					QC 7 - 13
					QC 7 - 14
					QC 7 - 15
					QC 7 - 17
					QC 7 - 18
					QC 7 - 19
					QC 7 - 2
					QC 7 - 28
					QC 7 - 3
					QC 7 - 30
					QC 7 - 34
					QC 7 - 36
					QC 7 - 37
					QC 7 - 41
					QC 7 - 47

				QC 7 - 48	
				QC 7 - 51	
				QC 7 - 58	
				QC 7 - 59	
				QC 7 - 60	
				QC 7 - 9	
				QC 7 - 68	
				QC 7 - 50	DAS
				QC 7 - 67	67, 9-08-09
				QC 7 - 40	9-89
				QC 7 - 24	
				QC 7 - 43	
170	Packaging 3-1 - Stock - B4B 1 pcs	6/21/19	0.00 0.00	Packaging 3 - 1 - B4B	
				Packaging 3 - 2 - B4B	
				Packaging 3 - 3 - B4B	
				Packaging 3 - 4 - B4B	
				Packaging 3 - 5 - B4B	
				Packaging 3 - 6 - B4B	
				Packaging 3 - 7 - B4B	
				Packaging 3 - 8 - B4B	
				Packaging 3 - 9 - B4B	
				Packaging 3 - 10 - B4B	
				Packaging 3 - 11 - B4B	
				Packaging 3 - 12 - B4B	
				Packaging 3 - 13 - B4B	
				Packaging 3 - 14 - B4B	
				Packaging 3 - 15 - B4B	
				Packaging 3 - 16 - B4B	
				Packaging 3 - 17 - B4B	
				Packaging 3 - 18 - B4B	
				Packaging 3 - 19 - B4B	
				Packaging 3 - 20 - B4B	
				Packaging 3 - 21 - B4B	
				Packaging 3 - 22 - B4B	
				Packaging 3 - 23 - B4B	
				Packaging 3 - 24 - B4B	B3 2/8/2019
				Packaging 3 - 25 - B4B	
				Packaging 3 - 26 - B4B	
				Packaging 3 - 27 - B4B	
				Packaging 3 - 28 - B4B	
				Packaging 3 - 29 - B4B	
				Packaging 3 - 30 - B4B	
				Packaging 3 - 31 - B4B	
				Packaging 3 - 32 - B4B	
				Packaging 3 - 33 - B4B	
				Packaging 3 - 34 - B4B	
				Packaging 3 - 35 - B4B	
				Packaging 3 - 36 - B4B	
180	QC 21 - SA 1 pcs	6/21/19	0.00 0.00	QC 21 - SA - 21	DAS
				QC 21 - SA - 70	21 AUG 09 2019
				QC 21 - SA - 53	9-89

Part Op 100 - Mori Seiki TL-40 (Mori Seiki CNC Lathe Large) 1-Fill tube with sand & install plugs DT8534 on both ends as per Descriptions: Folio FA114 2-Turn first side as per Folio FA114
 110 - (QC2- Inspect parts off machine FAI/FAIB)
 120 - Mori Seiki TL-40 (Mori Seiki CNC Lathe Large) 1-Turn second side as per Folio FA114
 130 - (QC2- Inspect parts off machine FAI/FAIB)
 140 - (QC8- Inspect parts - second check)
 145 - (Crosstubes) GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.
 150 - Crosstubes) 1- handfinish X-TUBE INSIDE AND OUT
 160 - (QC7-Inspect Chemical Conversion Coat)
 170 - (Identify as per dwg & Stock Location: _____) Identify and stock in kanban rack Location: _____
 180 - (QC21- Final Inspection - Work Order Release)

Job BOM				
Part / Item	Component Name	Quantity	Operation	Container
D6006-129	Crosstube Material	1 pcs (1 ea)	100-Mori Seiki TL-40 - 1	F123967

Job Allocations				
Operation	Component Part	Required	Inventory	Allocated
100-Mori Seiki TL-40 - 1	D6006-129	1	53	0

Part Specifications

Specifications could not be found.

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Container No: S201666



Part: D212-664-201TRN

Job No: 195372

Serial No/Batch: S201666

Revision: E

Inspector:

Exp Date:

Instructions:

Dart Aerospace Ltd.
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Email: sales@dartaero.com
www.dartaerospace.com

Date: 07/30/19

①

DART AEROSPACE LTD	Work Order: 195372
Description: Crosstube Assembly (205/212 High Aft)	Part Number: D212-664-241
Inspection Dwg: D212-664-241 Rev: E	Page 1 of 2

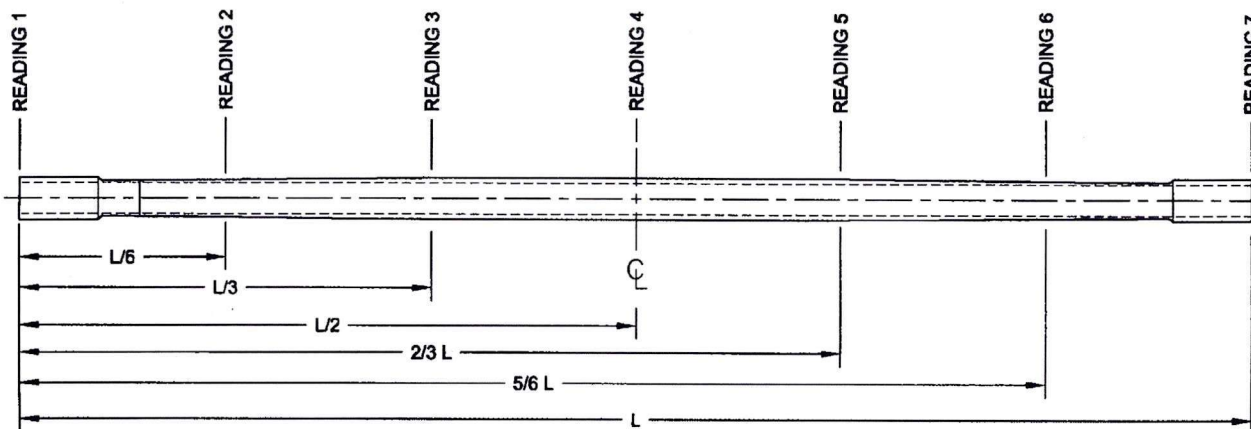
FIRST ARTICLE INSPECTION CHECKLIST

Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	2.06	✓	CNC-08	
	R0.063	+/-0.010	0.63	✓	RG	
	2.990	+0.005/-0.000	2.994	✓	CNC-04	
	5.237	+/-0.030	5.235	✓	CNC-08	
	2.600	+0.005/-0.000	2.605	✓	CNC-04	
	2.686	+0.005/-0.000	2.691	✓		
	2.770	+0.005/-0.000	2.775	✓		
	2.854	+0.005/-0.000	2.859	✓		
	2.938	+0.005/-0.000	2.943	✓		
	3.021	+0.005/-0.000	3.025	✓	CNC-05	
	3.133	+0.005/-0.000	3.138	✓	"	
	3.179	+0.005/-0.000	3.184	✓	"	
SIDE B	0.200	+/-0.010	2.05	✓	CNC-08	
	R0.063	+/-0.010	0.63	✓	RG	
	2.990	+0.005/-0.000	2.994	✓	CNC-04	
	5.237	+/-0.030	5.234	✓	CNC-08	
	2.600	+0.005/-0.000	2.605	✓	CNC-04	
	2.686	+0.005/-0.000	2.691	✓		
	2.770	+0.005/-0.000	2.775	✓		
	2.854	+0.005/-0.000	2.859	✓		
	2.938	+0.005/-0.000	2.943	✓		
	3.021	+0.005/-0.000	3.025	✓	CNC-05	
	3.133	+0.005/-0.000	3.138	✓	"	
	3.179	+0.005/-0.000	3.184	✓	"	
	124.362	+/-0.020	124.36	✓	Tape	

①

DART AEROSPACE LTD	Work Order: 195379
Description: Crosstube Assembly (205/212 High Aft)	Part Number: D212-664-241
Inspection Dwg: D212-664-241 Rev: E	Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L = 0"	.381	.413	.428	.401	.047	0.062"
READING 2 L = 20.73	.301	.333	.334	.308	.033	
READING 3 L = 41.45	.480	.493	.516	.486	.036	
READING 4 L = 62.18	.510	.540	.556	.520	.046	
READING 5 L = 82.91	.478	.496	.510	.481	.032	
READING 6 L = 103.64	.321	.345	.316	.294	.051	
READING 7 L = 124.36	.391	.409	.411	.399	.020	

Calibration Result

Actual Block Thickness: 200-500

Sitescan 250 Measured Thickness: 200-500

Measured by:	DAS 66
Date:	2019-07-30

Audited by:	JW
Date:	19-07-31

Preliminary Approval:	
Date:	

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-201)	KJ/JLM	
B	06.03.09	Tolerance for 5.237 was +/-0.001	KJ/JLM	
C	07.05.08	Dwg Rev. updated	KJ/JLM	
D	10.08.03	Dimension 124.362 was 124.36	KJ	
E	12.06.04	Wall thickness form added	KJ	
F	15.03.03	Dwg Rev updated	KJ	

Item	Qty -241	Qty -241B	Part Number	Description
1	X		D212-664-241	CROSSTUBE ASSEMBLY (205/212 HIGH AFT)
2		X	D212-664-241B	CROSSTUBE ASSEMBLY (214 HIGH AFT)
3	1	1	D6006-129	CROSSTUBE
4	2		D2940-1	SUPPORT
5	4	4	D3595-063-530	RUBBER CUSHION
6		2	D5018-1	SUPPORT
7	4	4	MS21920-28	CLAMP (OR MS21920-30)
8	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6006-129
FINISHED LENGTH = 124.362±0.020
- 2) FINISH: a) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
b) PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
c) MASK UNDERSIDE OF CROSSTUBE AS SHOWN (ZN C6-2 / C6-3, HATCHED AREA)
d) PAINT OUTSIDE PER DART QSI 005 4.2
e) REMOVE MASKING AND APPLY MATTE CLEAR COAT
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: D212-664-241/-241B = 44.2 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

MACHINING

- 10) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.

BENDING

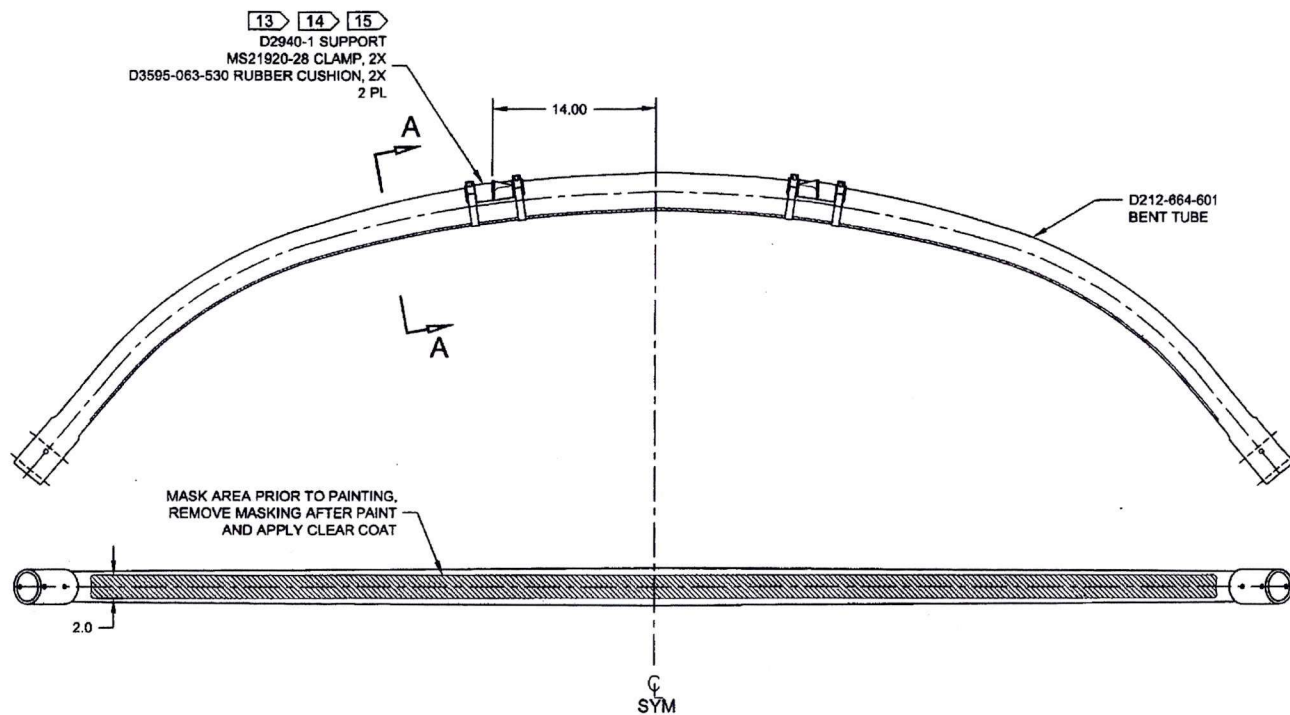
- 11) BEND PROGRESSIVELY WITH A MINIMUM OF 5 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 7.2% (BASED ON O.D.) IN LOWER HALF OF R35.5 BEND AND 6% (BASED ON O.D.) ON REMAINING TUBE.
- 12) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.

ASSEMBLY

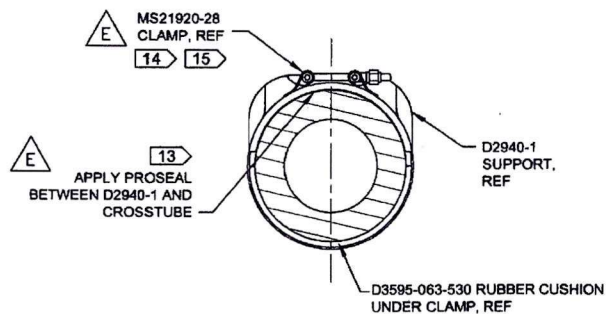
- 13) INSTALL D2940-1 / D5018-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 14) INSTALL MS21920-28 CLAMPS (OR -30) WITH D3595-063-530 RUBBER CUSHIONS TO SECURE THE SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE ON TOP SIDE OF CROSSTUBE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

RELEASED
2014-05-26

E	D5018-1 WAS D2940-1 (-241B), PROSEAL WAS MAGNOBOND, NOTE 2: ADD INSPECTION WINDOW, NOTE 11: ALLOW 7.2% CRUSH, NOTE 15: ADD 72HR CURE AND RETORQUE FOR PROSEAL, ADD SHEET 3, CLAMPS REVERSED TO PREVENT CHAFING (ZN B7-2, B7-3), BEND HEIGHT TOL. NOW 0.25 WAS 0.13 (C1-4), INCORP DEO D-1/-2	CP	14.04.01
D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -241B (ZN D4-2, B4-2); REMOVED REF & ADD TOLERANCES (ZN D8-3 & C4-3, C6-3 & A8-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -1009 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	CP	00.12.12
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	14.04.01		
DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA DRAWING NO. D212-664-241 REV. E SHEET 1 OF 5 TITLE CROSSTUBE ASS'Y (205/212 HI AFT) SCALE NTS COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD			



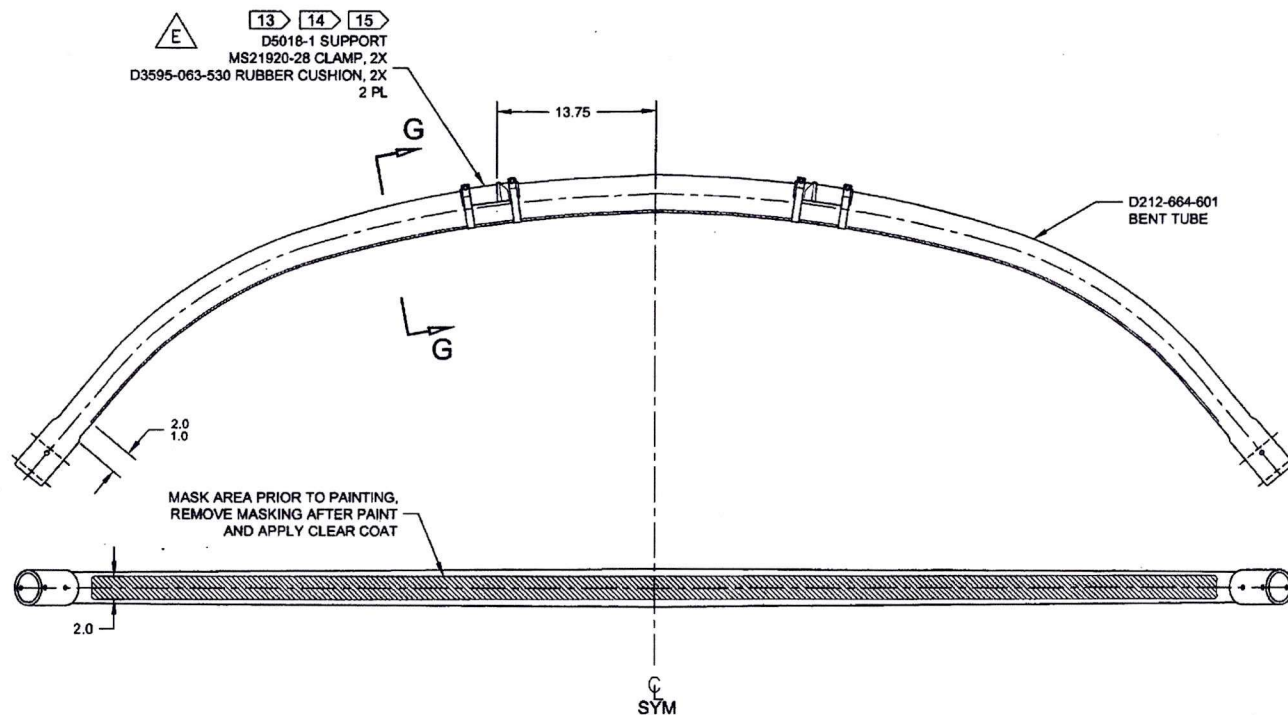
D212-664-241
ASSEMBLY DETAIL



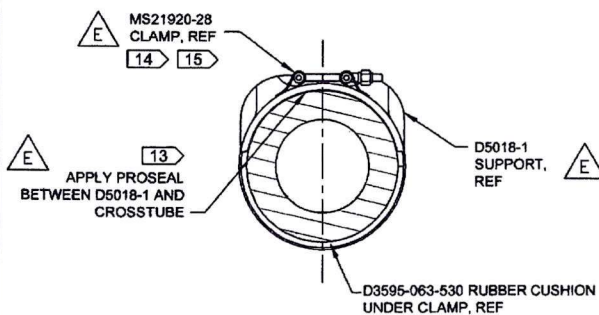
SECTION A-A
SCALE 4X

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DRAWN	90	HAWKESBURY, ONTARIO, CANADA	
CHECKED	DL	DRAWING NO.	REV. E
MFG. APPR.	W	D212-664-241	SHEET 2 OF 5
APPROVED	W	TITLE	SCALE
DE APPR.	W	CROSSTUBE ASS'Y (205/212 HI AFT)	NTS
DATE	14.04.01	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



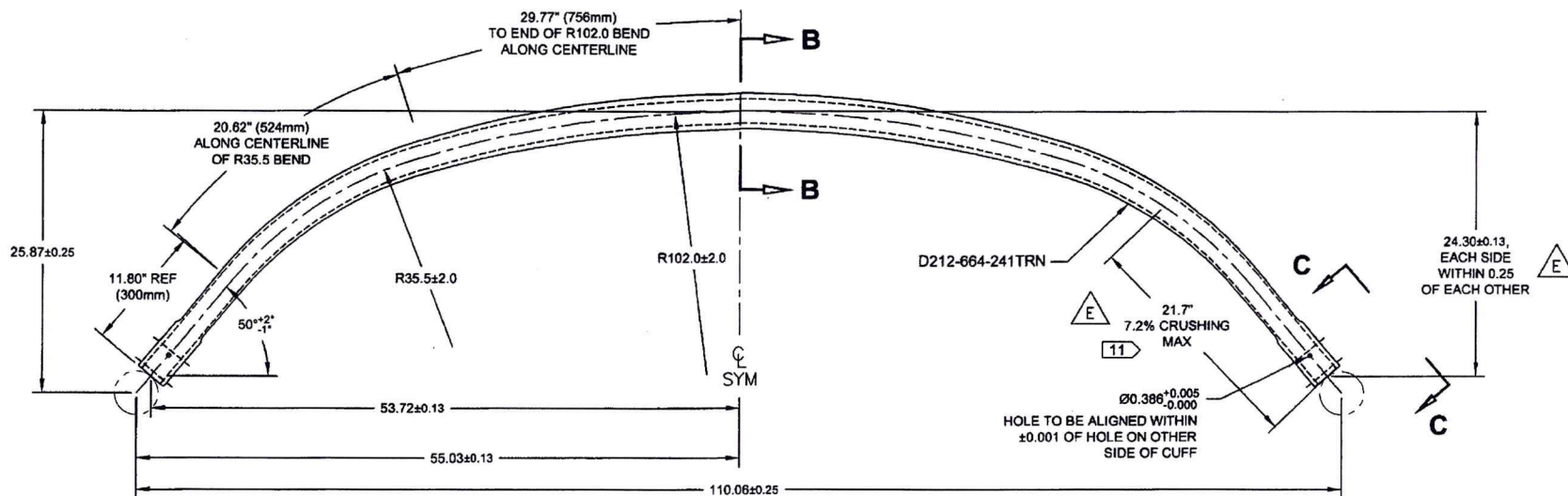
**D212-664-241B
ASSEMBLY DETAIL**



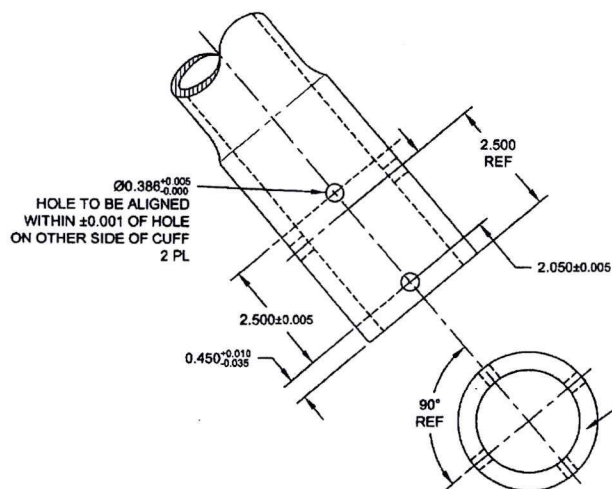
**SECTION G-G
SCALE 4X**

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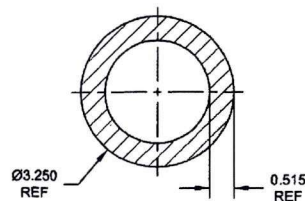
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DRAWN		HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. E
MFG. APPR.		D212-664-241	SHEET 3 OF 5
APPROVED		TITLE	SCALE
DE APPR.		CROSSTUBE ASS'Y (205/212 HI AFT)	NTS
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D212-664-601 11
BENDING AND DRILLING DETAIL



VIEW C-C: CUFF DETAIL
SCALE 3X



SECTION B-B
SCALE 4X

RELEASED
2014-05-26
WMD

DESIGN	<i>Q</i>	DART AEROSPACE LTD	
DRAWN	<i>Q</i>	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<i>Q</i>	DRAWING NO.	REV. E
MFG. APPR.	<i>Q</i>	D212-664-241	SHEET 4 OF 5
APPROVED	<i>Q</i>	TITLE	SCALE
DE APPR.	<i>Q</i>	CROSSTUBE ASS'Y (205/212 HI AFT)	NTS
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